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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,090	11/06/2001	Akira Kumazawa	10891-009001	7470

26211 7590 04/17/2003

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EXAMINER
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HAMILTON, CYNTHIA

ART UNIT	PAPER NUMBER
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1752

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DATE MAILED: 04/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/993,090

Applicant(s)

KUMAZAWA ET AL.

Examiner

Cynthia Hamilton

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 4-15-03 1) ☒ Responsive to communication(s) filed on 11-6-01, 1-28-02, 2-1-02 and supplemental to applicant's representative's phone call of April 15, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

### DETAILED ACTION

1. Pursuant to applicant's representative's, Mr. Richard Farara's telephone call received April 15, 2003, the examiner has issued this action as supplemental to the action mailed April 3, 2003. Mr. Farara informed Examiner Cynthia Hamilton that the Office Action Summary sheet of the Action in question was incomplete, especially in failing to set a three month shortened statutory period. Since such a failure would result in applicants having 6 months to respond. The examiner sends this Office Action to supplement the Office Action of April 15, 2003. The entire body of the previous action is incorporated here. No second copies of the references are included as applicants indicated all else appeared to be present. However, new copies of signed applicant's Information Disclosure Statements are enclosed.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, last two lines is found .."a copolymerizable monomer comprising one of a benzene ring and a cyclohexyl group." It is in claim 5 as well. All throughout the specification, applicants state as on page 4, lines 13-16, "a monomer unit at least one monomer selected from among copolymerizable monomers having a benzene ring or a cyclohexyl group..." The claim language does not clearly read a choice between a monomer with a benzene ring or a monomer with a cyclohexyl group. The "comprising" language is open ended and is used most often to list the components required in a group, e.g. a composition. Thus, do applicants claim a

Art Unit: 1752

monomer with one of a benzene ring and one of a cyclohexyl group? If so, they have failed to give a single monomer in their disclosure that meets this requirement. In the alternative, do applicants mean that the monomer unit is selected from the group consisting of a monomer with at least a benzene ring and a monomer with at least a cyclohexyl group? The second meaning is supported by the specification fully, but the first is not. The same problem occurs in claim 3 with respect to "the (meth) acrylate compound comprises one of a hydroxyl group and a carboxyl group". Does the compound contain one of both or does the compound contain one or the other? Starting on page 8 of the specification, the examples support a compound with either an hydroxyl group or a carboxyl group. The examiner has examined the claims both ways in view of the confusion and the showing in the disclosure.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Faust et al (4,245,030). With respect to instant claims 1-7, Example 1a and Example 3a of Faust et al anticipate the instant photosensitive composition wherein the polymerizable polyurethane

Art Unit: 1752

obtained in Example 1a is by reaction 11 moles of diisocyanate with 10 moles of triethylene glycol and reacting the product of this with 2 moles hydroxyethyl methacrylate and wherein Example 3a has such ratios as to yield isocyanate groups for reaction with the hydroxyl group of the methacrylate compound used. The excess of diisocyanate means that the first reaction product is terminated with isocyanate groups which then react with the hydroxyl group of the methacrylate. Styrene is the benzene containing monomer in the terpolymer which inherently has an value of from 50 mg KOH/g to 250 mg KOH/g as taught as normal by Faust et al in col. 4, lines 56-65. The compositions inherently can be used in sandblasting masks.

7. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faust et al (4,245,030). With respect to instant claims 1-7, Example 1a and Example 3a of Faust et al anticipate the instant photosensitive composition wherein the polymerizable polyurethane obtained in Example 1a is by reaction 11 moles of diisocyanate with 10 moles of triethylene glycol and reacting the product of this with 2 moles hydroxyethyl methacrylate and wherein Example 3a has such ratios as to yield isocyanate groups for reaction with the hydroxyl group of the methacrylate compound used. The excess of diisocyanate means that the first reaction product is terminated with isocyanate groups which then react with the hydroxyl group of the methacrylate. Styrene is the benzene containing monomer in the terpolymer which inherently has an value of from 50 mg KOH/g to 250 mg KOH/g as taught as normal by Faust et al in col. 4, lines 56-65. There is no monomer present at 20 parts per 100 parts of a+b+c in the working examples of Faust et al as found in instant claim 8. The diurethane methacrylate of Example 1a is present in too large an amount to qualify as the instant monomer. However, in the paragraph bridging col. 4-5 the addition of a di (meth) acrylate, i.e. the instant monomer, is taught by Faust

Art Unit: 1752

et al. In col. 5, lines 47-55, from 10-70 weight percent based on the non volatile components of the composition are preferred optional components. With respect to instant claims 1-8, the range of monomer added to the compositions of Faust et al that overlaps that of the monomer added in instant claim 8 would have been prima facie to use with the polyurethane compositions of Faust et al to form etching and electroplating photoresists. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). As to "for sandblasting" in the instant claim language, the examiner has taken this to be directed to the intended use of the composition and not as a structural limit on the claim language. If the body of a claim fully and intrinsically sets forth all of the limitations of the claimed invention, and the preamble merely states, for example, the purpose or intended use of the invention, rather than any distinct definition of any of the claimed invention's limitations, then the preamble is not considered a limitation and is of no significance to claim construction. Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165 (Fed. Cir. 1999).

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Faust et al (4,245,030) as applied to claim 1 above, and further in view of Celeste (3,469,982). Faust et al in col. 1, disclose the group of dry photopolymerizable photoresists inclusive of Celeste which are cited to show the types of materials known to be useful in the etching and electroplating art. It is to the improvement of such systems that Faust et al is drawn. Thus, with respect to instant claim 9, the use of an additional cover layer over the photoresist materials of Faust et al coated on polyester substrates as taught in Celeste in col. 2 to protect the photopolymerizable material

Art Unit: 1752

as disclosed in col. 3 of Celeste would have been prima facie obvious. Protection from lint, dust and other dirt is noted by Celeste in col. 10, lines 19-50.

9. Claims 1-4 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takehana et al (EP 0 741 332 A1). Takehana et al in their abstract disclose all of the instant composition of claims 1-4 and 7 wherein the a (meth) acrylate compound having a hydroxy group is used to make the urethane compound and a polyether is chosen to make the urethane and the presence of a monomer unit in the alkali-soluble polymeric compound of a benzene ring or a cyclohexyl group. However, benzyl methacrylate and cinnamic acid, i.e. 3 phenylacrylic acid, are choices given for forming the alkali-soluble polymeric compound of Takehana et al. Thus, with respect to instant claims 1-4 and 7, the choice of either of these given units to make the alkali-soluble polymeric compound of Takehana et al would have been prima facie obvious because they were disclosed as choices. In Takehana et al, see particularly page 4, lines 3-20. With respect to instant claim 8, on page 5, Takehana et al teach the addition of monomers to their sandblasting masks to increase sensitivity and decrease undesirable film thickness reduction and swelling in the development stage. With respect to the film of instant claim 9, Takehana et al teach sandwiching their compositions between flexible plastic films to form dry photoresists for support and protection on page 6 and thus, to form such an element for this reason from any composition made obvious by Takehana et al would have been prima facie obvious.

10. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obiya et al (EP 0 770 923 A1). The sandblasting masks of Obiya et al disclose all the parts of instant claims 1-9 with the exception of teaching a binder wherein a monomer unit is made from a monomer with either a cyclohexyl or benzene group present. However, comonomers of

Art Unit: 1752

cinnamic acid are taught on page 3, lines 47-48. Cinnamic acid is also known as 3 phenylacrylic acid. Thus, the choice of this acid as the acidic unit of the alkali-soluble polymer compound of Obiya et al would have been prima facie obvious as one of the preferred monomers listed. See in Obiya et al, the Examples, abstract and description of the photopolymerizable urethane (meth)acrylate used to make up the composition and film of Obiya et al set forth on page 3.

11. Claims 1, 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki et al (4,629,680). The compositions and dry resists of Iwasaki et al disclose all of the instant invention with respect to a benzene ring or cyclohexyl group being present on the binder present and the use of urethane acrylates. However, no working example gives them being used together. With respect to instant claims 1, 5-9, the use of the urethane acrylates of Iwasaki et al disclosed in col. 7 as the choice of addition polymerizable unsaturated compound is obvious in view of it being listed as several examples of the choices given. The sandwiched laminate is disclosed in col. 10 and the use of benzyl or cyclohexyl side groups in the binder would have been obvious to use in view of Table 1 showing seven of the eleven binders containing them. They are specifically used to obtain a unit that would form a homopolymer of a glass transition temperature higher than 50 degrees C to obtain sufficient flexibility, and reduce surface tack and cold flow as set forth in col. 2.

12. Claim 1 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Iwasaki et al (4,925,768). The compositions and sandwiched laminates of Iwasaki et al anticipate or in the alternative are obvious over the compositions and films of instant claims 1-9 wherein the only choice is the addition polymerizable unsaturated compound chosen. The tetrapolymer required present always has a benzene ring present and as



Art Unit: 1752

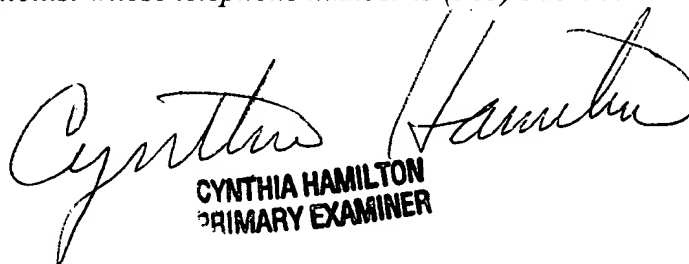
one choice of the polymerizable unsaturated compound having at least two ethylenically unsaturated double bonds is methacrylurethane oligomers made from reacting a polyol with an diisocyanate to prepare an isocyanate terminated compound then reacting it with a beta-hydroxyalkyl (meth)acrylate which are immediately envisionable from the list given in col. 4, lines 40 to the end.

*Any inquiry concerning this communication or earlier communications from the examiner should be directed to Primary Examiner Cynthia Hamilton whose telephone number is (703) 308-3626. The examiner can normally be reached on Monday-Friday, 9:30 am to 5:00 pm.*

*If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Baxter can be reached on (703) 308-2303. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.*

*Any inquiry of a general nature or relating to the status of this application should be directed to the 1700 receptionist whose telephone number is (703) 308-0661.*

Cynthia Hamilton  
April 15, 2003

  
**CYNTHIA HAMILTON**  
**PRIMARY EXAMINER**